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Method for the determination of a shared jackpot winning

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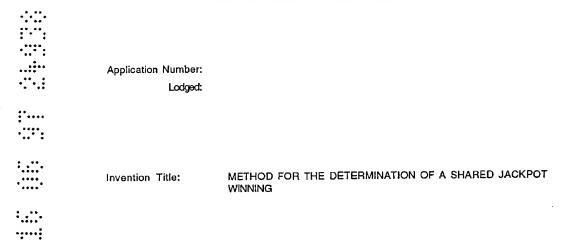EP 607823
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A B S T R A C T

Method for the determination of a shared jackpot
winning of a gambling apparatus unit, where the gambling
apparatus unit comprises coin-operated gambling machines,
wherein the gambling machines are linked to each other and
jointly fill a jackpot, and wherein a predetermined part of
the gambling bet of each gambling machine is employed to
fill the jackpot, and wherein the filling level of the
jackpot is displayed on the gambling machine and with a
large display, wherein

the filling level of the jackpot is monitored by a
communication board (11) of a control (7) of the gambling
machines (2a - 2d), and wherein an order sequence is sent
from the communication board (11) to a main board (10) of
the control (7) upon reaching or surpassing a jackpot
trigger value, which order sequence starts an identical game
sequence at the same time in all linked gambling machines
(2a - 2d), and wherein a gambling result to be expected of a
subsequent game can be predicted in this final game sequence
with a predetermined time period, and wherein a rank
sequence and a winning quota is determined depending on the
predicted game result and the actual game result, wherein
the rank sequence and the winning quota represent a
distribution key for the jackpot.

AUSTRALIA

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ORIGINAL

COMPLETE SPECIFICATION

STANDARD PATENT

Application Number:

Lodged:

Invention Title: METHOD FOR THE DETERMINATION OF A SHARED JACKPOT
WINNING

The following statement is a full description of this invention, including the
best method of performing it known to   us   :-

METHOD FOR THE DETERMINATION OF A SHARED JACKPOT WINNING

BACKGROUND OF THE INVENTION

1.   Field of the Invention

The invention relates to a method for the determination of a shared jackpot winning of a gambling apparatus, where the gambling apparatus comprises coin-operated gambling machines, wherein the gambling machines are interconnected and jointly fill a jackpot, and wherein a predetermined part of the gambling bet of each gambling machine is employed to fill the jackpot, and wherein the filling level of the jackpot is displayed on the gambling machine and with a large display.

2.   Brief Description of the Background of the

Invention Including Prior Art

An arrangement of the gambling apparatuses is known from the U.S. Patent 5,116,055, where the gambling apparatuses jointly fill a jackpot. In these win-payout gambling machines, such as for example slot machines, poker machines, or bingo machines, a progressive jackpot is filled in addition as a function of the number of the coins played instead of a fixed maximum winning. This progressive jackpot is displayed to the player, on the one hand, on a large display and, on the other hand, on a numerical display

on the gambling machine. The gambling machines are set and adjusted such that the jackpot is filled by a percentage of the coin value, determined and set once by the operating management of the gambling machines, of the respectively played coin value. The control of the entire jackpot system is performed according to the U.S. Patent 5,116,055 with its own control unit, where the control unit is connected to each gambling machine of the jackpot system through an interface unit disposed at the respective gambling machine. The progressive jackpot is triggered in each one of the gambling machines upon reaching of a predetermined winning symbol combination or other predetermined events. A further win-triggering event can for example be the reaching of a jackpot threshold value unknown to the user of the gambling machine and accidentally obtained by the user of the gambling machine. The achieved jackpot amount can only be triggered by one gambling machine and the total amount of the jackpot is coordinated to this gambling machine or, respectively, paid out to this gambling machine. Since the symbol-representing display means of the gambling machines connected to a jackpot can be different, for example, reels, flip-card carousels, or video displays, and thus a different symbol combination variety can be displayed, it is provided

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that, depending on the representable combination variety of symbol combinations and on the respective gambling bet at the respective gambling machines, a different amount of the gambling bet is branched off for the jackpot filling for each gambling machine depending on the representable symbol combinations of the gambling bet. It is however a disadvantage in this context that the respective jackpot amount is coordinated only to the triggering gambling machine. Furthermore, in case of a hardware failure or a software failure of the central control unit, the total jackpot system for the jackpot will succumb to failure.

SUMMARY OF THE INVENTION

1. Purposes of the Invention

It is an object of the invention to provide a jackpot system, wherein the gambling incentive is increased, and wherein a failure of a jackpot control unit is prevented as far as possible.

These and other objects and advantages of the present invention will become evident from the description which follows.

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2. Brief Description of the Invention

The present invention provides a method for the determination of a shared jackpot winning of a gambling apparatus unit, where the gambling apparatus unit comprises coin-operated gambling machines, wherein the gambling machines are linked to each other and jointly fill a jackpot, and wherein a predetermined part of the gambling bet of each gambling machine is employed to fill the jackpot, and wherein the filling level of the jackpot is displayed on the gambling machine and on a separate large display, wherein

the filling level of the jackpot is monitored by a communication board of a control of the gambling machines, and wherein an order sequence is sent from the communication board to a main board of the control upon reaching or surpassing a jackpot trigger value, which order sequence starts an identical game sequence at the same time in all linked gambling machines, and wherein a gambling result to be expected of a subsequent game can be predicted in a final game sequence with a predetermined time period, and wherein a rank sequence and a winning quota is determined depending on the predicted game result and the actual game result, wherein the rank sequence and the winning quota represent a distribution key for the jackpot.

The jackpot system of the present invention is associated with the advantage that each gambling machine can

assume the control of the jackpot system. In addition, this game system distinguishes itself in principle from the already existing progressive jackpot link systems, since the collective progressive jackpot amount is not coordinated to a single winner or, respectively, to a single gambling machine, but is played out by several players, entitled to participation, at the respective gambling machines in an especially therefor conceived play-off game, wherein each of the gambling machines, entitled to participation, participates proportionately in the payout of the jackpot amount corresponding to its winning rank sequence. The jackpot play-off is a part of the game system of the gambling machine connected in each case to the jackpot system. The possibility exists now, based on the invention integration of a further control unit in the respective gambling machine, to link gambling machines to each other by means of a communication network without further technical expenditures. In this connection, the additional control unit is constructed such that each can perceive and distinguish the function of a master operation or, respectively, of a slave operation. The determination whether a master operation or a slave operation is present is performed automatically.

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The novel features which are considered as characteristic for the invention are set forth in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings, in which are shown several of the various possible embodiments of the present invention:

Fig. 1 is a schematic diagram showing the construction in principle of a jackpot system with coin-operated gambling machines with the possibility of money winnings; and

Fig. 2 is a block circuit diagram showing the essential device groups of a coin-operated gambling machine with an additional control device for operating a communication network and an additional display means.

DESCRIPTION OF INVENTION AND PREFERRED EMBODIMENT

A gambling network shown 1, shown in Fig. 1, comprises several coin-operated gambling machines 2a - 2d

and a large display field 3, where the momentary level of
the jackpot is displayed. The gambling machines 2a - 2d are
linked with a network cable system 4 to a communication
network. The communication network can comprise 32 or more
gambling machines. The gambling machines 2a - 2d, linked in
the communication network, can exhibit different gambling
systems. The display means for the displaying of the
winning symbol combinations at the gambling machines 2a - 2d
are video screens 8. The gambling machines 2a and 2c
include a video screen 8 for the display of winning symbol
combinations, where symbol combinations are illustrated in a
3 x 3 matrix on the video screen 8. At the same time, the
momentary jackpot level is displayed on the respective video
screen 8 of the gambling machines 2b and 2d. Three side-by-
side disposed reel-shaped symbol-carrying rotary bodies are
in each case displayed on a video screen 8 at the gambling
machines 2b and 2d. The level of the jackpot is also
displayed in a designated region of the video screen 8 of
the gambling machines 2b and 2d. The gambling machines 2a -
2d exhibit in each case a device for receiving coins or,
respectively, bills on the front side in the region of the
video screen 8. The network cable 4, connecting the
gambling machines 2a - 2d, is led to plug connections on the

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gambling machine, not illustrated, where the plug
connections are connected on the gambling machines to a
control 7 of the respective gambling machines 2a - 2d. The
large display field 3 is connected with a plug connection,
furnished on the gambling machine, to the control 7 of the
gambling machine 2b.

The essential device groups, which are required for
the operating of a coin-operated gambling machine 2 in the
communication network operation, are illustrated in a block
circuit diagram in Fig. 2. The gambling machine 2 comprises
a symbol display formed as video screen 8. The control 7
comprises in addition to a mainboard 10 also a communication
board 11. Display means of a jackpot and a data exchange
and data matching of the gambling machines 2a - 2d in the
communication network are controlled by the communication
board 11. A coin unit 12, as taught in the German printed
patent document DE 36 41 346 A1, comprises an electronic
coin tester, a coin separating unit following to the
electronic coin tester, and followed by coin stack tubes for
the individual coins, which exhibit on the end side an
electromagnetically actuatable payout unit, as well as
operating elements 13, which are connected through an
interface, not illustrated, to the microcomputer 9 of the

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mainboard 10. The microcomputer 9 of the mainboard 10 comprises a microprocessor, such as CPU Hitachi 64 180 or Zilog Z80 180, 8 bit, 12 MHz, with an arithmetic-logic unit, an accumulator, and a control unit with fixed-value memory storage (ROM 27C 1000 / 2000 / 4000) and operating data memory storage (DS 1386 with a battery backup RAM), a clock-cycle generator as well as a bus system, with which all units are supplied with data addresses and memory addresses as well as control signals, and an input/output unit for performing the data traffic with the peripheral devices, such as the video screen 8, the coin unit 12, or the operating elements 13. Furthermore, the microcomputer 9 includes serial interfaces 14, 15. A connection to the communication board 11 on the gambling machine is furnished with the serial interface 15 (TTL-level). The serial interface 14 is formed as an RS 232 interface.

The communication board 11 comprises its own central processing unit CPU 16 (Hitachi 64 180 or Zilog Z80 180) with a serial interface 30 on the side of the CPU. A fixed-value memory storage 17 (ROM) of the type 27C 1000 / 2000 and a battery-buffered production data memory storage 18 (RAM) of the type DS 1225/1230Y is coordinated to the central processing unit 16. The connection between the

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central processing unit 16, the memory storage components 17, 18, and a serial communication controller 21 (Zilog Z 85 C 30) with serial ports is performed by an address decoder 19 and an input/output I/O decoder 20 and by a bus system. A serial port 22 of the communication controller 21 leads to the large display field 3 through the intermediary of a power amplifier 23 (MAX 483 or MAX 487), where the momentary jackpot level is displayed on the large display field 3. An external personal computer can be connected at an interface 24 of the communication controller 21, where the interface 24 is formed as a serial type RS 232. An interface converter 26 is connected at an interface 25 of the communication controller 21, where the interface 25 is formed as a serial type RS 485. The interface converter 26 comprises essentially an optical coupler 27 of the type 6 N 136 for the galvanic separation and following thereto a power amplifier 28. The network cabling is connected to the power amplifier 28.

The connection of the gambling machines 2a – 2d and the communication of the gambling machines with each other is performed through the respective communication board 11. Each communication board 11 has an individual address number, which is set once with a rotary switch. After each

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of the gambling machines has been switched on, there occurs the automatic recognition as to which one of the gambling machines 2a - 2d performs the master function or the slave function. After a switching on, the gambling machines wait for a time period of three seconds + (50 milliseconds x individual address number) for a recognition signal of the master. Since no gambling machine 2a - 2d has yet accepted the master function at this point in time, the acknowledgement signal is not present. In this case, a master-function takeover signal is sent after a further two seconds by the communication board. According to the above-recited time calculation, the gambling machine with the lowest address number will send out this signal first and take over the master function. The other communication boards 11 will confirm the receipt of this signal and will behave as slaves in the communication network.

The data are updated over the communication network every (30 milliseconds x number of gambling machines in the communication network), i.e. the master requests the data from each individual slave, adds up the total amount, and returns the data back to the slaves such that each communication board 11 contains the same data content. Therefore, each slave can assume the master function in case

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of a malfunction of the master. Such a network is associated with the advantage of multi-master capability. Each communication board 11 contains its own central processing unit with the communication software and all data relevant for the control of the network, and can therefore assume both the function of the master as well as the function of a slave. This measure assures that also in case of a failure of the master the valid data content and the overall functioning of the system remains intact at all times with the exception of the original master.

If upon a switching on of the gambling machines 2a - 2d there should be indications of more than a single master, and there is a possibility that one master receives the master signal of another master, then the master with the lowest address number will deactivate and will perform the slave function.

After a successful automatic master/slave determination, in each case after the switching on of the gambling machines 2a - 2d, the communication board 11 furnishes a release signal to the mainboard 10. A configuration can be performed with a personal computer PC through an interface 14, disposed on the mainboard 10 and formed as a RS 232 series interface 14, as to what

percentage of the respective gambling bet is branched off to the jackpot. The filling level of the jackpot is displayed on the video screen on the one hand, and on a central large-display field 3 on the other hand. Furthermore, a second, covered, so-called hidden jackpot is furnished. This covered or second progressive jackpot, not visible to the player, accumulates in the background. The increase or, respectively, the growth of the second covered, hidden jackpot can be set by the operating management. The operating management determines the percentage which is branched off from the game bet for the hidden jackpot. If the first jackpot is only in part paid out, then the remaining amount of the first jackpot is used to fill the hidden jackpot and this hidden jackpot becomes subsequently the first jackpot, where the first jackpot is thus displayed on the respective display at the gambling machine and/or on the large display field 3. Thus, simultaneously with the first jackpot, the hidden jackpot is built up by way of an adjustable and settable percentage.

A jackpot trigger value is predetermined by a determination of a lower jackpot value and of an upper jackpot value. The jackpot trigger value disposed between the lower and the upper jackpot value is determined with a

pseudo-random generator of the mainboard 10. Upon reaching or surpassing of the jackpot trigger value, the jackpot is frozen and a jackpot payout sequence is started. If the jackpot limiting value is surpassed by the proportional branching off of from the further bets of the game, then the amount surpassing the jackpot trigger value is fed to the hidden jackpot.

The gambling machine 2a - 2d with the master function calls every 30 milliseconds for the data of each of the individual slaves and thus receives the increased amount of the jackpot. These part values are added up by the master, the actual jackpot value is calculated and is transmitted through the communication network to the slaves. If a reaching or a surpassing of the jackpot trigger value is thereby determined, then a special jackpot payout sequence is activated by the mainboard 10, which is the same with all gambling machines 2a - 2d.

If the jackpot payout sequence was initiated, then at each of the gambling machines 2a - 2d, which are part of the network, the possibility is given to each user of the gambling machine 2a - 2d to obtain in a so-called qualification time a predetermined result within a predetermined time interval, displayable with the video

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screen 8, i.e. the user has to reach in an arbitrary number of games during this time period a winning symbol combination predetermined in the gambling machine. The way and means of qualification are determined by the game software employed.

A percentagewise predetermined part of the gambling stakes or bets during the qualification time is added to the second, so-called hidden jackpot. The time duration or, respectively, the remaining qualification time is graphically illustrated on the video screen 8. The players or the users of the gambling machines 2a - 2d, which have reached the predetermined gambling result within the qualification time, can now participate in a final game, which is in this example a horse-racing game. The number of the horses participating in the race depends on the number of the participating gambling machine users. The following standard values and determining factors are valid for representing the number of horses on the video screen:

Number of horses: (minimum number : 3 horses)

Number of qualified participants ≤ 5 : 3 horses

Number of qualified participants $6 - 7$: 4 horses

Number of qualified participants ≥ 8 : 5 horses.

The possibility is now given to the qualified user

of the gambling machine 2a - 2d to put a bet on an occurrence of a game result during a further, subsequently following predetermined time period. This is performed by activation of operating elements disposed on the front side of the gambling machine 2a - 2d, which operating elements are connected to the control 7 of the respective gambling machine 2a - 2d. The remaining betting time is also graphically illustrated on the video screen. Furthermore, the winning quotas or, respectively, the possible win amount of the jackpot are displayed to each player. If several players have bet on the same game result or horse, then the winning quota is calculated anew corresponding to this number of players and is displayed on the video screen 8. The following standard is used for the calculation of the winning quota:

Winning quota per placement:

Horse races with

	5 horses	4 horses	3 horses
	Percentage of the jackpot value		
first place	50 %	52%	55%
second place	20 %	21%	25%
third place	15%	16%	20%
fourth place	10%	11%	
fifth place	5%		

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Several factor tables are stored in the fixed-value memory storage of the main board.

The indicated percentage values are varied by means of a factor table on the main board in order that each payout is not based on the same percentage.

Type of winning table at the video screen:

	Place 1	Place 2	Place 3	Place 4	Place n
Horse 1					
Horse 2					
Horse 3					
Horse 4					
Horse n					

From the existing factor table disposed on the communication board there is selected one of these per pseudo-random number generator of the mainboard 10. The following holds for all factors entered in the factor table:

(factor place 1 + factor place 2 + ... +

factor place n) / n = 1;

where n = number of horses.

Calculation of the individual winnings amounts:

winning place n = jackpot amount x winning quote

x factor place n;

where n is the number of the horses.

Non-qualified players or, respectively, gambling machines 2a - 2d do not have a possibility to participate in the betting procedure in the final game. After expiration of the betting time, the final game (horse race) is activated simultaneously in all participating gambling machines 2a - 2d. It is determined in the final game which of the players has correctly played the displayed game result. The jackpot is paid out according to the determined rank sequence and winning quote. Amounts that are not paid out are fed into the hidden jackpot, which then serves as starting amount for the new jackpot. This final game (horse race) is a second, independent game, which runs its course simultaneously and identically in all gambling machines 2a - 2d through the communication network and which is integrated as a part in the gambling software of each one of the gambling machines 2a - 2d.

According to a further embodiment of the invention, the initially described qualification time is dispensed with. The qualification time can be deactivated by means of a personal computer connected to the serial interface 14 by the operating management, i.e. in this case the users of the gambling machines 2a - 2d do not have to reach a winning

symbol combination predetermined by the gambling machine in order to participate in the final game. Thus, everyone can participate in the final game.

According to a further embodiment of the invention, the initially described determination of the jackpot trigger value is dispensed with. Instead of the jackpot trigger value, alternatively, a "promotion" jackpot can be activated within the system, i.e. an amount and a date/time of day is entered through the serial interface 14. By way of an actual-time clock present on the mainboard 10, the final game is initiated with the entered amount at exactly the predetermined point in time.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of method for determination of a shared jackpot winning differing from the types described above.

While the invention has been illustrated and described as embodied in the context of a method for determination of a shared jackpot winning, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present

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invention.

Without further analysis, the foregoing will so
fully reveal the gist of the present invention that others
can, by applying current knowledge, readily adapt it for
various applications without omitting features that, from
the standpoint of prior art, fairly constitute essential
characteristics of the generic or specific aspects of this
invention.

What is claimed as new and desired to be protected
by Letters Patent is set forth in the appended claims.

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. Method for the determination of a shared jackpot winning of a gambling apparatus unit, where the gambling apparatus unit comprises coin-operated gambling machines, wherein the gambling machines are linked to each other and jointly fill a jackpot, and wherein a predetermined part of the gambling bet of each gambling machine is employed to fill the jackpot, and wherein the filling level of the jackpot is displayed on the gambling machine and on a separate large display, wherein

    the filling level of the jackpot is monitored by a communication board of a control of the gambling machines, and wherein an order sequence is sent from the communication board to a main board of the control upon reaching or surpassing a jackpot trigger value, which order sequence starts an identical game sequence at the same time in all linked gambling machines, and wherein a gambling result to be expected of a subsequent game can be predicted in a final game sequence with a predetermined time period, and wherein a rank sequence and a winning quota is determined depending on the predicted game result and the actual game result, wherein the rank sequence and the winning quota represent a distribution key for the jackpot.

2.	Method according to a claim 1, wherein the user of each gambling machine,	who participated in the final game, receives a quota-corresponding part of the jackpot according to the quota obtained on his/her gambling machine.

3.	Method according to claim 1 and 2, wherein the shared amount of the jackpot is paid out by the coin-payout unit of the gambling machine.

4.	Method according to claim 1, wherein the game sequence, started by the communication board	in the mainboard,	comprises a qualification game and the final game, and wherein participation is available in the final game if a winning combination or winning combinations, predetermined in the gambling machine, are reached within a predetermined time period in the qualification game.

5.	Method according to one or several of the preceding claims, wherein upon reaching or surpassing the jackpot trigger value, the jackpot amount, branched off proportionately from the gambling bet, is subsequently fed to a second covered hidden jackpot.

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6. Method according to claim 5, wherein the amounts not to be paid out of the triggered jackpot are added to the hidden jackpot, and wherein the hidden jackpot now becomes the triggerable jackpot.

7. Method according to one or several of the preceding claims, wherein a lower jackpot level value and an upper jackpot level value can be predetermined by the operating management of the gambling establishment by way of a personal computer through a serial interface of the communication board, and wherein the jackpot trigger value between the lower jackpot level value and the upper jackpot level value is determined by way of a pseudo-random generator of the mainboard upon switching on the gambling machines.

8. Method for the determination of a shared jackpot winning of a gambling apparatus unit, where the gambling apparatus unit comprises coin-operated gambling machines, wherein the gambling machines are linked to each other and jointly fill a jackpot, and wherein a predetermined part of the gambling bet of each gambling machine is employed to fill the jackpot, and wherein the filling level of the

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jackpot is displayed on the gambling machine and on a separate large display, wherein

the operating management of the gambling apparatus units can determine an amount, a date and a time through an interface of a communication board with a personal computer and, if these set data are present, then a game sequence is opened by the communication boards in mainboards, whereby an identical game sequence is started at the same time in all network gambling machines, wherein the user of the gambling machine has to predetermine a game result of a following final game, and wherein a winning quota is determined in the final game for each participant depending on the predetermined and the actually achieved game results, and wherein the jackpot amount is paid out depending on the respective winning quota.
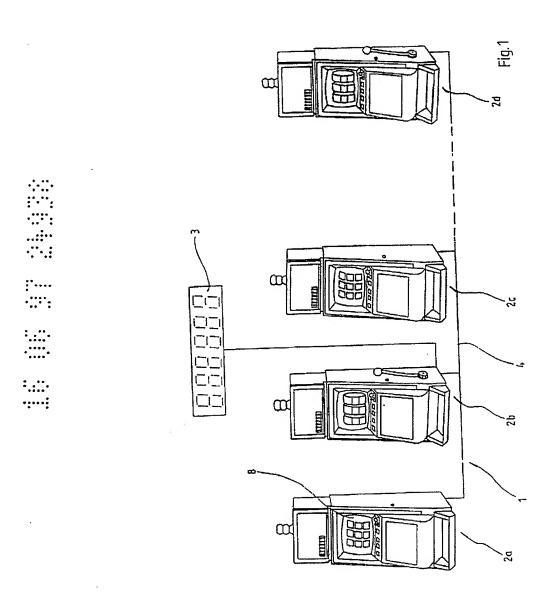
9.   A method according to claim 1 and as herein described with reference to the drawings.
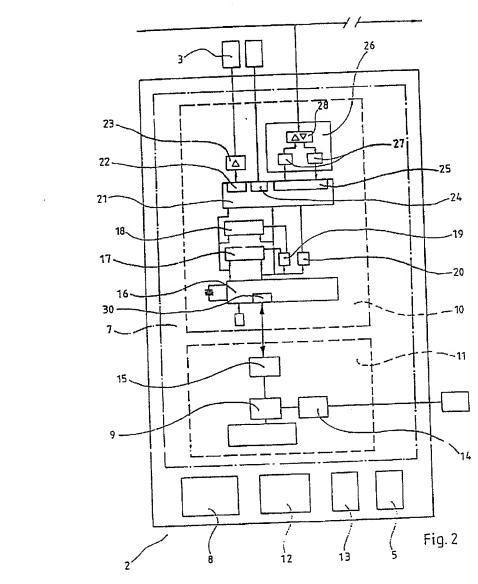
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Fig.1

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Fig. 2